Chapter 24: Creating Reports and Extracting Data

SEER*DMS includes an integrated reporting and extract module that enables you to run pre-defined system reports and create standard extracts. In addition, external queries can be created to generate customized reports or create data files other than the standard extracts included in the system. Tools such as Perl, Microsoft Access, Crystal Reports, SAS, JWorkbench, and SEER*Stat can be used to generate reports or analyze data extracted from the SEER*DMS database.

Although external applications may be used to access both the live database and the data warehouse, it is strongly recommended that you access the data warehouse unless the analysis absolutely requires data from the live database. Complex or inefficient queries to the live database may affect system performance and affect interaction with the system by registry staff. Registry staff with the appropriate system permissions can read and write data in the live database via the SEER*DMS application. Write-access to the live database through external applications is controlled by Oracle system permissions and should only be granted to registry system administrators.

In this chapter, you'll learn about

- Creating Reports
- Data Extracts and Submissions
- Report Formats
- Finding a Standard Report or Extract
- Adding a Report or Extract to "My Reports"
- Deleting a Report or Extract from "My Reports"
- Running a Standard Report or Extract
- Running One of "My Reports"
- Viewing Output of Reports
- Downloading an Extract Data File
- Searching the Worklist for Report and Extract Tasks
- Sending Report Output to another User

Creating Reports

Three methods can be used to create a report using SEER*DMS data:

- Select and generate one of the system's Standard Reports which summarize registry activities, track data through the system, and provide quality control information. Standard Reports are report templates with parameter settings that can be set by the user and saved in a list of "My Reports".
- Use a link, button, or menu item in the system that creates and opens a report. This would include print buttons, print menus, and report links integrated throughout the system. Instructions for generating integrated reports are provided in the chapters for the related activities.
- Create a custom, external report using any of a variety of software packages to access the SEER*DMS data directly. Reporting tools such as Microsoft Access, Crystal Reports, SAS, etc., can be used to generate reports using data in the live SEER*DMS database or the data warehouse. Sample reports and SQL are available on the SEER*DMS Web Portal (http://seer.cancer.gov/seerdms/portal). The development and maintenance of external reports are the responsibility of registry staff. Contact your registry's system administrator for information regarding the external reports available at your registry.

All reports available in SEER*DMS are documented in *Appendix A: SEER*DMS System Reports*. This documentation includes reports that are listed as Standard Reports as well as reports that are integrated as print mechanisms throughout SEER*DMS. A unique Report ID is displayed in the upper left corner of each report. If you have a copy of a SEER*DMS report and are not sure how to generate it in the system, refer to the information for that Report ID in Appendix A. Revisions and additions to reports within SEER*DMS are under the control of the Change Control Board.

Data Extracts and Submissions

Standard data extracts, such as the SEER submission file, have been integrated into the reporting module of SEER*DMS. In addition, Perl extract scripts which use imbedded SQL queries have been provided as examples of external scripts for creating custom extracts. Ad-hoc extracts can easily be produced using any tool or programming language which can access Oracle or ODBC. These include Crystal Reports, Access, Perl, Python, SAS, and many others.

The SEER*DMS database and data warehouse can be accessed from PC or server applications. To access the database from Windows-based software, drivers must be installed on your PC that enable connectivity with the Oracle databases. For example, you may install ODBC drivers to enable access to the live database or data warehouse using Crystal Reports or Microsoft Access. Other applications, such as SAS, may require additional components provided by the vendor.

The SEER*Stat software can be used to generate reports and to generate incidence, survival, and prevalence statistics. Once you extract data to a text file, you may use the SEER*Prep software to create a SEER*Stat database from the data stored in the extract file.

Please contact your registry's system administrator for specific instructions on creating or using external extract programs.

Report Formats

The reports currently available in SEER*DMS were designed to be viewed and printed as PDF files. Some reports may be successfully generated as Comma Separated Values (CSV), HTML, or Excel files. If you attempt to use one of the current reports in a non-PDF format, it is recommended that you verify the output by comparing it to the PDF version. Tables that do not have consistent rows and columns may not export correctly to CSV or Excel. Forms, worksheets, and record printouts may not display properly in a format other than PDF.

Finding a Standard Report or Extract

System permissions: *reports* is required to access the Report and Extract Manager. Certain reports also require *reports_management*; extracts are only listed if the user also has the *extract_create* permission. A report's permission is displayed on its Report Specifications page.

The reports and extracts provided in the SEER*DMS Report Manager are the "Standard Reports and Extracts". These include independent reports that are not integrated into other system modules and data extracts that are common to all registries. The Standard Reports include summaries of registry activities, quality control reports, and reports that allow you to track data as it moves through the system. The Standard Extracts enable you to create the files for submission to SEER and NAACCR. See *Appendix A: SEER*DMS System Reports and Extracts* for information about the individual reports and extracts.

*To find a Standard Report or Extract in SEER*DMS:*

1. Select **View** > **Reports**. If you have any saved report templates, the list of My Reports will be shown. If no reports have been saved, you will go directly to the full list of Standard Reports.

2. If you are viewing My Reports, click **Standard Reports**.

3. To sort the list by the data in a column, click on the underlined column heading. The IDs for the standard extracts have EXT prefixes. Report IDs for registry-specific reports include a 2-character registry code following an RPT prefix. If you sort by **ID**, the registry-specific reports will be grouped together and listed after reports with generic IDs.

4. Search the list by entering search text into one of the three **Filter** search boxes. Enter full or partial strings to search for a particular report using its **ID** or limit the list to a single **Category**. Search text entered in the **Title/Description** field will be used to search report title and summary fields.

5. Click **Sample** to review the layout and content of a report. Note: Samples are not complete reports; only enough pages are included to display each section of the report.

6. Click an ID or the associated **create** link to set parameters for a report or extract. You may then save the template in your list of "My Reports", or run the report or extract. Further instructions are provided in the *Adding a Report or Extract to "My Reports"* and *Running a Standard Report or Extract* sections of this chapter.

The **Source** column indicates whether the report uses data from the live database or the data warehouse.

Adding a Report or Extract to "My Reports"

System permissions: *reports* is required to access the Report and Extract Manager. Certain reports also require *reports_management*; extracts are only listed if the user also has the *extract_create* permission. A report's permission is displayed on its Report Specifications page.

You may save the reports and extracts that you use most frequently in the "My Reports" list. If you periodically run a report or extract with the same parameter settings, you may set the parameters once and save those settings in "My Reports". You may save multiple copies of the same report template with different parameter settings.

To add a report or extract to "My Reports":

1. Click **View > Reports**. If you previously saved reports, the list of My Reports will be shown. If no reports have been saved, you will go directly to the list of Standard Reports.

2. To add a new report or extract from the Standard Reports:

   a. Use the filter to find the report or extract to be saved.

   b. Click the ID or the associated **create** link to open the report/extract template.

3. To create a report or extract by using one of "My Reports" as a template:

   a. Use the My Reports filter to search the list for the report or extract.

   b. Click the **Copy** link associated with the report that you wish to use as a template.

4. If you are saving a report template, set the **Output Format** to PDF. Some reports may be successfully generated in Comma Separated Values (CSV), HTML, or Excel formats. If you attempt to use one of the current reports in a non-PDF format, it is recommended that you verify the output by comparing it to the PDF version.

5. Edit the **Title** as necessary. This is used to identify the Report Output task for reports and extracts. It is also the first title line shown in a report. Many reports include sub-titles

which are often used to display parameter settings. You may wish to run and review the report to determine the best title.

6. Edit the **Summary** to reflect any customizations that you are making to this report or extract. Specifically, document the parameter settings that you will be using.
7. If you routinely use the same values for some parameters, set values for those parameters. You are not required to set parameter values when saving a report or extract. You will be able to set values for all parameters when you run the saved report.
8. Click **Save**.

Deleting a Report or Extract from "My Reports"

For frequently used reports and extracts, parameter settings may be saved in the "My Reports" list. If a report or extract is deleted from "My Reports", the default settings will still be available in the list of Standard Reports.

To delete a report or extract from "My Reports":

1. Click **View > Reports**. Reports saved as "My Reports" will be displayed.
2. Use the filter to find the report or extract to be deleted.
3. Click the ID or the associated **edit** link to open the report/extract template.
4. Click **Delete**.
5. Click **OK** to confirm.

Running a Standard Report or Extract

System permissions: *reports* is required to access the Report and Extract Manager. Certain reports also require *reports_management*; extracts are only listed if the user also has the *extract_create* permission. A report's permission is displayed on its Report Specifications page.

*To run a Standard Report or Extract in SEER*DMS:*

1. Click **View** > **Reports.**
2. If you are viewing My Reports, click **Standard Reports**.
3. To find the report or extract, specify search criteria in the filters and click **Apply**.
4. Click the ID or the associated **create** link to open the report template.
5. If you are executing a report:
    a. Set the **Output Format** to PDF. Some reports may be successfully created in a Comma Separated Values (CSV), HTML, or Excel formats. If you attempt to use one of the current reports in a non-PDF format, it is recommended that you verify the output by comparing it to the PDF version.
    b. Edit the **Title** as necessary. This is the first title line shown in the report. Many reports include sub-titles which are often used to display parameter settings. You may wish to run and review the report to determine the best title. (The **Summary** text is only used in the report managers. You may modify this text if you intend to save the report to My Reports.)

c. Use the parameters to customize this report. Typically, parameters are used to specify the cohort or define the sort order. If a parameter's label is in bold text, it is required. A blank setting for an optional parameter implies "all possible values" for that field. Some reports have the potential to request large volumes of data from the database. To prevent a report from affecting the response time for other users, SEER*DMS terminates report queries that exceed the time limit or generate a large result set. The thresholds are defined by the *reporting.time-out.minutes* and *reporting.max.rows* configuration settings. SEER*DMS enforces the value for maximum rows set in the configuration settings unless a report-specific value is specified in the report's XML file (this feature is rarely used). If a report exceeds the time or row limit, the Report Output task will display an error message. You will then have the opportunity to select new parameters to reduce the amount of output.

6. If you are creating an extract data file:

    a. Edit the **Title** as appropriate. This title will be associated with the Report Output task and can be used to find the task in the worklist.

    b. Set the extract parameters to meet your needs. If a parameter's label is in bold text, it is required. A blank setting for an optional parameter implies "all possible values". (Note: the filename entered here will be used as default text when you download the extract file.)

7. Run the report or extract by clicking the appropriate button:

    a. **Run** – queries the database and creates the report as you wait. (This option is not available for extracts.) If this process is able to complete within a time limit specified in the SEER*DMS configuration, the Report Output task will open automatically. Otherwise, the Report Output task will be available in the worklist when the Run Report task completes.

    b. **Run Offline** – creates an automated, Run Report workflow task. You will be returned to the Standard Report Types page.

8. To open the report, follow the steps in the *Viewing Output of Reports* section of this chapter. To download the extract data file, follow the steps in the *Downloading an Extract Data File* section of this chapter.

In order to protect the system from a slowdown caused by a large query, SEER*DMS limits the number of report and extract tasks that are processed simultaneously. Additional report and extract tasks are queued and are executed when others complete.

Running One of "My Reports"

Requires system permission: *reports* if executing a saved report; *extract_create* to execute a saved extract.

To find and run a report or extract saved in "My Reports":

1. Click **View** > **Reports**. The list of My Reports will be shown, if any reports have been saved.

2. To sort the list by the data in a column, click on the underlined column heading.

3. To find the report or extract, specify search criteria in the filters and click **Apply**.

4. If you know that the report or extract does not have parameters or that the parameter values are pre-set, you may use either the **run** or **run offline** link as described below in

part b. If you do need to check or set parameter values, click the **ID** or the **edit** link and follow the instructions in both a and b.

a. To edit the title and/or specify parameters:

   i. Edit the title as necessary. This is used to identify the Report Output task for reports and extracts. It is also the first title line shown in a report. Many reports include sub-titles which are often used to display parameter settings. You may wish to run and review the report to determine the best title.

   ii. Set the parameters. If a parameter's label is in bold text, it is required. A blank setting for an optional parameter implies "all possible values".

b. Run the report or extract by clicking the appropriate button:

   i. **Run** – queries the database and creates the report as you wait (all extracts are run offline). If this process is able to complete within a time limit specified in the SEER*DMS configuration, the Report Output task will open automatically. If the process exceeds the time limit, the Run Report task will be executed offline. The Report Output task will be created in the worklist when the report or extract finishes executing.

   ii. **Run Offline** – creates an automated, "Run Report" workflow task. You will be returned to "My Reports."

c. To open the report, follow the steps below in *Viewing Output of Reports*.

Viewing Output of Reports

Requires system permission: *reports* (certain reports also require *reports_management*)

An automated Run Report worklist task is created when a report is executed. When the report is successfully generated, a manual Report Output task is created and assigned to the user who submitted the report. If the report was executed using the Run command, this Report Output task opens automatically (proceed to step 2 in the instructions below). If a Run Report task fails, a System Failure task is created.

To view the output of a report that you submitted:

1. To view the output from a report that ran offline:

   a. Click **View** > **Home** or click SEER*DMS in the top banner to return to the home page.

   b. Click **Report Output** in the My Tasks section of your worklist summary. If this link is not shown, the report may have failed or may still be running (see the instructions below for *Searching the Worklist for Report and Extract Tasks*).

   c. If you are searching for a recently generated report, click the **Age** column header to sort the list. Click once to display the most recent task last, click a second time to display the most recent first.

   d. To search for a report by title, enter a full or partial title into the **Text** filter and click **Apply**.

   e. If the task is not displayed in the list, the report may have failed or may still be running (see the instructions for *Searching the Worklist for Report and Extract Tasks*).

   f. Click on the Task ID to open the Report Output task.

2. Due to memory limitations in the reporting engine and the impact of exhaustive queries on system response time, SEER*DMS must enforce restrict the execution time and number of result rows generated by each report. The thresholds are defined by the *reporting.time-out.minutes* and *reporting.max.rows* configuration settings. If either limit is exceeded, an error message will be displayed. Click Report Specifications to specify parameters that reduce the number of records, and re-run the report.

3. Click **View**.

   a. The report may open automatically, or you may be prompted to Open or Save the report. If prompted, click **Open**. The PDF will open in an Adobe Acrobat window.

   b. Use the Adobe controls to print or save this report.

   c. Close the Adobe window.

4. If you need to correct parameter values or titles, submit a new report:

   a. Click **Report Specification**.

   b. You may make modifications to the **Title, Summary,** and **Parameter** fields.

   c. Click **Run** or **Run Offline**. A new task will be submitted. The existing task will remain in the worklist until it is removed. You will be returned to the worklist.

5. If you will not need to access this Report Output task again, you should remove the task from the worklist to prevent unnecessary clutter. Click **Remove** to permanently delete this task and the PDF from the worklist. If you may need to access this Report Output task again, click **Close** to save and return to the worklist.

Downloading an Extract Data File

Requires system permission: *reports* and *extract_create*

An automated Run Extract Report task is created when a SEER*DMS extract is executed. When the task completes, an email is sent to the user who initiated the task and a Report Output task is created and assigned to the user. If a Run Extract Report task fails, a System Failure task is created.

To download an extract data file:

1. Open the Report Output task for the extract:

   a. Click **View** > **Home** or click SEER*DMS in the top banner to return to the home page.

   b. Click **Report Output** in the My Tasks section of your worklist summary. If this link is not shown, the extract task may have failed or may still be running (see the instructions below for *Searching the Worklist for Report and Extract Tasks*).

   c. If you are searching for an extract that was created recently, click the **Age** column header to sort the list. Click once to display the most recent task last, click a second time to display the most recent first.

   d. To search for an extract by its title, enter a full or partial title into the **Text** filter and click **Apply**.

   e. If the task is not displayed in the list, the task may have failed or may still be running (see the instructions below for *Searching the Worklist for Report and Extract Tasks*).

f. Click the Task ID to open the Report Output task.

2. Review the following items that are provided in the Report Output task:

   a. **Generated Records** – the number of records included in the extract data file. If this value is zero, review the parameters that were specified to determine if an error was made.

   b. **Filename** – the filename field in the Parameters section contains the text that you entered when you executed the extract. Depending on your browser, you may or may not be prompted for a filename. If not, the file will be saved to your browser's Download folder with this name.

   c. **Parameters** – verify that the correct parameters were used to create the extract.

3. If you need to correct parameter values, submit a new extract:

   a. Click **Report Specifications**.

   b. You may make modifications to the **Title, Summary,** and **Parameter** fields.

   c. Click **Run Offline**. A new task will be submitted. The existing task will remain in the worklist until it is removed. You will be returned to the worklist.

4. To download the extract data file:

   a. Tips for managing downloads in Firefox:

      i. Typically, the file will be downloaded to a folder that is defined as the "Downloads" folder in Firefox. In the Firefox menus, go to Tools > Options and select the Downloads tab. Verify that the downloaded data will be stored in an appropriate location. Change this location, if necessary. Pease refer to the Firefox user's manual for more specific instructions.

      ii. At any time, you may access your download folder by selecting Tools > Downloads from the Firefox menus.

   b. Click **Download** on the Report Output Task page. Depending on browser settings and version, the file may be saved to your download folder automatically or you may be prompted to Open or Save the file. If prompted, click **Save to Disk**. If you are not prompted to select a location, the file will be saved in the folder that is defined as the "Downloads" folder in Firefox.

5. If you will not need to access this Report Output task again, you should remove the task from the worklist to prevent unnecessary clutter. Click **Remove** to permanently delete this task from the worklist and delete the data file from the server. If you may need to access this Report Output task again, click **Close** to save and return to the worklist.

Searching the Worklist for Report and Extract Tasks

Requires system permission: *reports*

Each submitted report or extract task will appear in the worklist as a Run Report, Run Extract Report, Report Output, or System Failure task. When the task is initiated, SEER*DMS creates either a Run Report or Run Export Report task. The results for both are made available in a Report Output task which is assigned to the user who initiated the task. If the task fails, an unassigned System Failure task will be initiated. SEER*DMS users with the *system_administration* permission can access and review System Failure tasks.

To search the worklist for output from report or extract tasks:

1. Click **View > Worklist** or click the Worklist link on the home page.
2. If you are only interested in reports and extracts that you submitted, enter your user name in the **User(s)** filter.
3. Place a check in the **Include Unassigned** filter.
4. Select *Report Output* in the **Type(s)** filter.
5. Click **Apply**.

If a report or extract that you were expecting is not displayed, it may still be running (change the filter to include “Run Report” or “Run Report Extract” tasks in the search).

Sending Report Output to another User

Requires system permission: *worklist_task_reassignment*

Typically, you should distribute reports and extract data by saving the files to disk or providing printed copies of reports. However, SEER*DMS does allow you to reroute Report Output tasks to other users via the same mechanism used to reroute any worklist task. Users must have the appropriate permissions to access the output tasks.

To reroute a Report Output task to another user:

1. Select **View** > **Home** or click SEER*DMS in the top banner to return to the home page.
2. Click **Report Output** in the **My Tasks** section of the worklist summary. If this link is not shown, the report may have failed or may still be running.
3. If you are searching for a recently generated report, click the **Age** column header to sort the list. Click once to display the most recent task last, click a second time to display the most recent first.
4. To search for a report by title, enter a full or partial title into the Information filter and click **Apply**.
5. Check the box to the left of the Task ID.
6. Click **Modify**.
7. Set the **Action** to *Re-route to User*.
8. Select a user name from the pull-down list. Only system users with permission to view the report or open the extract will be listed. To view report output, the user must have either the *reports* or *reports_management* permission; *extract_create* is required to access output tasks related to extracts.
9. Click **OK**.